DOCUMENT RESUME

ED 434 875 SP 038 809

AUTHOR Trimble, Susan; Case, Tom
TITLE Refocusing Teacher Education: 21st Century Teacher Competencies and Related Factors.
PUB DATE 1999-07-30
NOTE 10p.; Paper presented at the World Future Society (Washington, DC, July 30, 1999).
PUB TYPE Opinion Papers (120)
EDRS PRICE MF01/PC01 Plus Postage.
DESCRIPTORS Classroom Techniques; College School Cooperation; Computer Uses in Education; Computers; Educational Change; Educational Technology; Elementary Secondary Education; Higher Education; *Information Technology; *Interpersonal Competence; *Knowledge Base for Teaching; Partnerships in Education; *Preservice Teacher Education; *Teacher Competencies; Teaching Skills

ABSTRACT

Advances in information technology have introduced fundamental changes in business structures and work processes. These changes demand the development of new educational approaches that integrate the thinking of business and teacher education as a foundation for building teachers' skills to prepare their students for life and work in these organizations. This paper consists of four sections: (1) the 21st century teacher competencies that relate to people skills of negotiating, networking, creating, and sustaining both short- and long-term working relationships across cultures and functions, and task skills of designing group technology-based projects, data-driven analyses and problem solving, and keeping current skills in ways of thinking, learning, and dealing with change, copious amounts of data, and new technologies; (2) instructional best practices that foster group work, decision-making, project learning, and appropriate technology; (3) the changes needed in university infrastructures to enable teacher education to implement new instructional practices (i.e., adjusting internal load/rewards to promote faculty collaboration, specialized independent work units, university/school/business partnerships, and outcome-oriented evaluation criteria); and (4) components of teacher education programs that prepare teachers for the realities of life in the 21st century. (Contains 19 suggested readings.) (Author/SM)

****
* Reproductions supplied by EDRS are the best that can be made *
* from the original document. *
****

Handout

ED 434 875

Refocusing Teacher Education:
21st Century Teacher Competencies and Related Factors

Susan Trimble
College of Education
Georgia Southern Univ
Statesboro, GA 304560-8134
(Ph) 912-681-5092
susatrim@gsvms2.cc.gasou.edu

Tom Case
College of Business Administration
Georgia Southern Univ
Statesboro, GA 30460-8152
(Ph) 912-681-5205
tcase@peachnet.campuscwix.net

PERMISSION TO REPRODUCE AND DISSEMINATE THIS MATERIAL HAS BEEN GRANTED BY

S Trimble

TO THE EDUCATIONAL RESOURCES INFORMATION CENTER (ERIC)

July 30, 1999
Paper Presented at the World Future Society
Washington D.C.

U.S. DEPARTMENT OF EDUCATION
Office of Educational Research and Improvement
EDUCATIONAL RESOURCES INFORMATION CENTER (ERIC)

☐ This document has been reproduced as received from the person or organization originating it.

☐ Minor changes have been made to improve reproduction quality.

• Points of view or opinions stated in this document do not necessarily represent official OERI position or policy.

Abstract

Advances in information technology have introduced fundamental changes in business structures and work processes (e.g. delayering hierarchies, decentralizing/distributing decision making, building strategic alliances, expanding knowledge management capacities, and creating virtual corporations). These changes demand the development of new educational approaches that integrate the thinking of business and teacher education as a foundation for building teachers' skills to prepare their students for life and work in these organizations.

This paper consists of four sections: (1) the 21st century teacher competencies that relate to people skills of negotiation, networking, creating and sustaining both short- and long-term working relationships across cultures and functions, etc. and task skills of designing group technology-based projects, data-driven analysis and problem-solving, and keeping current skills in ways of thinking, learning, and dealing with change, copious amounts of data, and new technologies, (2) instructional "best practices" that foster groupwork, decision-making, project-learning, and appropriate technology, (3) the changes needed in university infrastructures to enable teacher education to implement new instructional practices, i.e., adjusting internal load/rewards to promote faculty collaboration, specialized independent work units, university/school/business partnerships, and outcome-oriented evaluation criteria, and (4) components of teacher education programs that prepare teachers for the realities of life in the 21st Century.

SP038809

BEST COPY AVAILABLE

Additional Teacher Competencies for the 21st Century

Additional Content: Knowledge of:

- violence and safety
- character education
- learning styles
- basic statistics
- diversity issues with wide range of students: cultural, racial, gender, age-related issues; AP students with high risk students
- emerging technology as artificial intelligence, virtual reality, personal digital assistants

Additional People Skills: The ability

- to be part of a team
- to negotiate
- to network across cultural environments
- to collaborate on projects
- to relate to people of diverse backgrounds

Additional Pedagogy Skills:

- to manage complex classroom social interactions
- to be aware of societal forces (violence, suicide, gangs)
- to incorporate forms of character education
- to match teaching strategies and technology with needs of students and appropriate objectives
- to design learning experiences that create global cultural connections
- to scaffold learning experiences
- to assess student progress and outcomes
- to establish meaningful evaluation criteria
- to demonstrate a basic understanding of statistics
- to use learning theory to teach diverse learners
- to possess multiple learning strategies for a diverse student
- body (culture, AP, high risk)
- to incorporate forms of alternative assessment

Keeping Current Skills: Thinking/attitude skills to deal with increased pace of change and more information

- to learn continually
- to deal with complexity (prioritize, establish boundaries, small steps) and to tolerate ambiguity
- to establish criteria and evaluate multiple sources
- to use critical thinking and problem-solving
- to make data-based decisions
- to possess a global consciousness and an international perspective
- to know and use the value of interdependency
- to use change models for initiating and sustaining change

Wfrange

Range of Teacher Technology Competencies

No Initiative Involvement Instructional Design Decision- Making Multiple Perspectives

NON-INVOLVEMENT	AWARENESS	INDIVIDUAL SKILL DEVELOPMENT	SKILL INTEGRATION with Content in Problem-Solving Situations	MULTI-SKILL CREATIVITY Global Projects
Description	*Use of technology when required by the school *Exposure to others' use of technology *Taking students to a computer lab where others coordinate instruction *Awareness of the variety of Web and software resources	*Personal use of computer in classroom management as school requires for posting grades, attendance, email *Occasional use of technology for sources of information in student assignments & for teacher background information *Use of variety of software for student assignments, skill and drill, reporting and displays of data *Making connections with others through the Internet using email, listserves, and chat rooms *Learning to do Web searches	Designing learning activities that may require *answers to real-world problems *choosing the best technology for the learning objective *evaluating Web-based information and sources *aggragating data from multiple sources *linking interdisciplinary information sources *making connections & meaning to threads of information *team-based decision-making	Designing interdisciplinary projects that include multiple skills and multiple problems, large data sets, work in teams, multiple skills and global connections across cultures global data-analysis designing collaborations designing problems expanding options Teachers leave with a set of skills adaptable to any teaching situation
Example	Channel One Accelerated Reader Josten Learning Programs	speadsheets wordprocessing timelines software graphing software Exploration, as Virtual Fly and Frog presentation software, PowerPoint	Decisions, Decisions; Jim LaBue's molecular design NetMeeting SimCity, etc. : Trail Series	Egg-Drops, Global Comparison of .... Using GIS data base, for soil, natural resources, demographics, to define problems and seek solutions Internet Projects Projectbased Learning

- to know and use the value of interdependency
- to use change models for initiating and sustaining change

Best Practices in Teacher Education

A. Extended experiences in schools incorporating the following:

- Learning by doing with constructive feedback (Grabe & Grabe, 1998. Learning with Internet Tools. Boston: Houghton Mifflin, 40.)
- Applying theory to practice (Korthagen & Kessels, 1999. Linking Theory and practice: Changing the pedagogy of teacher education. *Educational Researcher, 28*(4), 4-16)
- Alternating field work and campus classroom instruction
- Reflecting on experiences with a mentor, master-teachers, instructor, peer group
- Working in high performing schools using technology
- Participating in schools with community & business partnerships - FIPSE

B. Learning classroom experiences that address competencies

- Combination of directed instruction and constructivists strategies that fit the technology to the student (Roblyer's (1998), p. 59 for chart)
- Use of technology for support and instruction: Class Web Page for class resources, links; Web browsers to enrich scope of assignments, audio conferencing and computer conferencing tools, such as chat rooms and list serves, and video conferencing to support interpersonal communication (Microsoft Net Meeting and Ubique Virtual Places for 20 people to meet), PowerPoint slides; sport ineractive white boards, variety of software for range of competencies, subject-specific software)
- Participation in group projects
- Connections with professor and other students, i.e., tutoring and mentoring
- Time for reflection, increased time allotted for learning and practicing skills
- Experts' collaboration of subject area + pedagogy
- Learning environments and lesson plans that reflect systematically planned instruction (Gagne, Briggs, & Wager, 1992; Smith & /Ragan, 1993, Hamza & Alhalabi, 1998) and models such as the ASSURE model (Heinich et al., 1998) that outlines the following five steps of instructional planning (analyze learners, state objectives, select media and materials, use materials, require learner performance, evaluate and revise).
- Problem-solving techniques such as the H3 creative problem-solving model (from Hamza, Hafer, & Hall, 1998; view it as www.iste.org/L&L/). First, access the needs of the situation, search the current situation, assess solutions, select the ideal; distinguish between the problem itself and its symptoms; propose alternatives; implement, evaluate the results, and make adjustments.
- Encouragement of creativity through guest speakers, brainstorming session, case studies, CU-SeeMe technology (White Pine Software, www.wpine.com) for the addition of human interaction in distance education
- Gradual increase in complexity of skills (Korthagen & Kessels, 1999)]
- Use of case studies [FIPSE Pace University]

BEST COPY AVAILABLE

University Infrastructures to Support 21st Century Teacher Preparation Programs

University Infrastructures to Support 21st Century Teacher Preparation Programs
Boundaryless universities that are electronically linked to appropriate external organizations to ensure a continuous influx of new ideas, initiatives, technologies, and evaluative feedback.
Synergistic inter-university partnerships that enable a superior educational experience for students at each institution.
Partnerships with business organizations and third-party training/educational institutes.
University policies that enable, not inhibit, student enrollment in valuable courses at other universities.
Ensure equitable distribution of technology resources across colleges and departments
Student-friendly policies and procedures that enable individual students to custom-design a program of study that optimally satisfies his/her needs.
Administrative processes that continuously review mechanisms for leveraging the resources within traditional budget units in order to enhance existing degree programs and create new ones.
A telecommunications infrastructure that facilitates the establishment of electronic and video-conferencing links among secondary schools, business organizations, and other universities.
Ready access to emerging instructional technologies and their rapid assimilation within teacher preparation curricula.
Technology demonstration/teaching centers focused on assisting university faculty in mastering new technologies and providing curriculum integration insights.
Forum for faculty sharing of technology-based teaching techniques.
University technology master plans that ensure the development of an appropriate telecommunications infrastructure.
Technology-oriented teaching centers for ongoing development for university faculty, students, and alumni.
Release time and/or cooperative experiences/internships that enable university faculty to stay abreast of technological realities and opportunities in secondary schools.
Creation/facilitation of peer mentoring mechanisms to ensure ongoing communication among teacher preparation program graduates.
Faculty and administration evaluation and reward structures that incent all of the above.

BEST COPY AVAILABLE

Components of Responsive Teacher Education Programs

A. Contextual factors

1. Federal Support and directives , e.g. from the

   - National Council for the Accreditation of Teacher Education to enforce the integration of technology in teacher preparation
   - Department of Education's Preparing Tomorrow's Teachers to Use Technology (www.ed.gov/teachtech/).
   - Past initiatives that had no financial backing, as in 1996, the 21st Century Teachers Initiative and the McGuffey Project, of a Washington non-profit group.
   - A current initiative of the University of Phoenix, a for-profit organization that specializes in on-line courses for adults. Www.21ct.org, a place to exchange ideas and materical

2. State funding: e.g., Texas's $25 million to encourage teacher education programs to be more field-based and technology intensive.

3. State policies: deregulation, privatization, teacher certification, alternative certification, licensure of other agencies, associations, schools, and individual mentors as providers

B. Procedures: Various procedures enable traditional Schools of Education to become *responsive* organizations that provide the learning experiences that result in qualified teachers. Responsive teacher education program do the following:

1. Purpose and Process
   - Determine their purpose, i.e., to provide a broad-based education in the form of degrees & certification for technology-proficient individuals to promote learning with diverse students.
   - Identify competencies, align instruction, and assess to match competencies
   - Demonstrate and require technology-enriched instruction
   - Focus on outcomes
   - Monitor student progress and incorporate accountability into programs
   - Speed up change process and course approval

2. Client-Focused
   - Provide a variety of options to accommodate the learner (market-driven), increasing the variety of course times and locations, expanding teletraining, and granting credit for accredited educational offerings from public and private providers, i.e., Web-based, College of Ed-based, private corporate-based, school & district-based.
   - Conduct market surveys and trend analysis to upgrade curriculum and address changing marketplace demographics
   - Customize graduate degree programs to students' needs

3. Faculty-Development
   - Provide incentives for faculty and students to learn technology-expertise and to keep current in their field
   - Provide internships in technology-rich schools and organizations. for faculty and students with other degrees

BEST COPY AVAILABLE

4. Making connections/partnerships/collaborations
   - University departments + schools. . . .Connect university math, science, technology, and business departments + schools, EX: multi-school Hands-on Universe program at the University of California at Berkeley and funded by the National Science Foundation.
   - University + industry. . . . Connect campus faculty with industry personnel involved in recent technology innovations and implementing project work. An international organization, The American Creativity Association (www.BeCreative.org) balances industry and academia interests.
   - University departments + schools of education. . . Develop intra-university program partnerships between schools of education and college science, math, business, and technology departments
   - Schools of education + schools that use technology in instruction effectively

Suggested Readings on Information Age Organization Structures

Ashkenas R., D. Ulrich, T. Jick, and S. Kerr. 1998. *The Boundaryless Organization: Breaking the Chains of Organizational Structure.* San Francisco: Josey-Bass.

Davidow, W. H., and M.S. Malone. 1992. The Virtual Corporation. *California Management Review*, (November): 34.

Davidow, W. H., and M.S. Malone. 1992. *The Virtual Corporation*, New York: Harper Business.

Halal, W. E. 1994. From Hierarchy to Enterprise: Internal Markets are the New Foundation of Management. *Executive*, (November): 69.

Halal, W.E. 1998. *The New Management: Democracy and Enterprise are Transforming Organizations.* New York: Berrett-Koehler.

Hammer, M. 1997. *Beyond Reengineering: How the Process-Centered Organization is Changing Our Work and Our Lives.* New York: HarperCollins.

Hammer, M. and J. Champy. 1991. *Reengineering the Corporation.* New York: HarperCollins.

Handy, C. 1993. *Understanding Organizations.* New York: Oxford University Press.

Keen, P. G. W. 1991. *Shaping the Future: Business Design Through Information Technology.* Boston: Harvard Business School Press.

Keidel, R. W. 1994. Rethinking Organizational Design. *Executive*, (November): 12.

Lipnack J., and J. Stamps. 1998 .*Virtual Teams: Reaching Across Space, Time, and Organizations With Technology.* New York: John Wiley & Sons.

Lucas, H. (1996). *The T-Form Organization.* San Francisco: Josey-Bass.

Suggested Readings on Technology and Teacher Education

Garne, R. M., Briggs, L. J., & Wager, W.W. (1992). *Principles of instructional design* (4th ed.). Orlando, FL: Harcourt Brace.

Hamza, M.K., & Alhalabi, B.A. Teaching in the information age: The creative way! *SITE99 Conference Proceedings.* Charlottesville, VA: Association for the Advancement of Computing in Education

Hunt, J. B., & Broad, M.C. (1999). Changing demands on teacher education and professional development. *Transforming postsecondary education for the 21st century.* Denver: Educational Commission of the States. (www. ecs.org)

Miller, M. A., & Gilbert, S. W. (1999). Educational uses of information technology: A view for state leaders. *Transforming postsecondary education for the 21st century.* Denver: Educational Commission of the States. (www. ecs.org)

Nobel, D. F. (1997). Digital diploma mills: The automation of higher education. *TWU Local 7* [Online serial]. Available: www.journet.com/twu/deplomamills.html.

Roblyner

Smith, P.L., & Ragan, T. J. (1993). *Instructional design.* New York: Macmillan

Uchida, D. (1996). *Preparing Students for the 21st century.* Arlington, VA: American Association of School Administrators.

BEST COPY AVAILABLE